

Time Series – Prediction Task

1. Heart rate prediction

Sudden variations in heart rate could lead to the risks of stroke, heart failure, sudden cardiac arrest, and also death. Therefore, monitoring the heart rate is critical as it helps to discover the irregularities of the heart's function to detect health problems. With the advancements in AI and stream processing technologies, more accurate future predictions also can be made, allowing healthcare sectors to detect and treat such situations at early stages.

In this task, you are given a time series collected using medical sensors, approximately four hours of data for a patient. Using these data, you need to build an effective time series model to predict the next twenty (20) observations (minutes) of heart rate data (Lifetouch Heart Rate). You can use any time series model you want, either from the sessions or your own research based on the topics we discussed.

2. Data set

Within the data folder, there are 6 .csv files available.

PiD...csv (5 files)

Additional time series data was provided to get used to modelling with the time series models covered in this module

PT_Train.csv

Training data for modelling and future predictions are required for the submission

Note: The final predictions (for submission) should be made for the data in PT_Train.csv, and other files (PiD...csv) are provided as resources to practice learning algorithms and analyse their behaviour.

3. Submission

The final submission should include the following:

a. Predictions

The next twenty (20) observations (minutes) of Lifetouch Heart Rate predicted by the **best** time series model you built need to be submitted to the **CodaLab**. Please carefully read the submission instructions given on the CodaLab page before submission.

b. Blog explaining your implementation

A Maximum 300-word blog explaining what you did and why including any plots and screenshots of the code needs to be submitted to **Moodle**.

Make sure to describe the comparisons you made across different models you built to select the best model in your blog.

Note: Both elements mentioned above must be submitted to consider your submission as a valid submission.